XACCTpacketSight

XACCTpacketSight

User Guide

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Corporate Office

XACCT Technologies, Inc.
2900 Lakeside Drive
Santa-Clara, CA 95054
USA
Tel: 408-654-9900
Toll free: 1-877-GO-XACCT
Fax: 408-654-9904

www.xacct.com

International Office

XACCT Technologies (1997) Ltd.
31 Lechi St.
Bnei-Brak 51200
Israel
Tel: 972-3-6180040
Toll free: 1-877-255-7270
Fax: 972-3-5799798

Email: info@xacct.com

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About This Book

This book provides instructions on using XACCTpacketSight. It covers all the aspects of the system you need to know and understand to take full advantage of its advanced features.

This book is organized as follows:

Chapter 1, "Overview," includes an overview of the system. It provides a description of its components and operation.

Chapter 2, "Installing XACCTpacketSight," contains a description of the steps you must perform to install *XACCTpacketSight* and the Information Source Modules.

Chapter 3, "Configuring XACCTpacketSight," contains a description of the data flow in the system and provides a detailed explanation of the system configuration options and procedures.

Chapter 4, "System Management and Maintenance," describes tasks that should be done on a routine basis.

Chapter 5, "System Specifications," lists the system specifications.

Appendix A, "XACCTpacketSight Files," lists the files and directories installed by XACCTpacketSight.

Document Conventions

The following typographic conventions are used in this book:

Typeface or Symbol	Meaning	Example
Italics	References to other documents, new terms, and placeholders.	For instructions on configuring the Information Source Module, see the *Information Source Module Guide* of the corresponding ISM. Type *UIShostname*:**5888**
Bold	Names of menus, options, command buttons, and fields.	From the **Object** menu, choose **Edit**. In the **Name** box, type the name of the report.

`Monospace`	Command-line input, on-screen computer output, sample code examples, names of files, commands and directories in UNIX.	Execute the following command:
		
		`ps -ef | fgrep vold`
		
		The following message appears on your screen:
		
		`XACCT Installation complete.`

`Monospace Bold`	What you type contrasted with computer output.	Type the following: **`./xacct_install.`**

Overview

1

XACCTpacketSight is a passive network analysis software packaged as an appliance on a standalone computer. It increases existing solutions provided by the XACCT*usage* product line. It provides a rich new information source of network protocols, attributes and statistical information. The collected data is aggregated and enhanced by XACCT*usage*, providing you with a significant business infrastructure to address problems such as intranet traffic classification and analysis.

XACCTpacketSight does sophisticated session reconstruction and application reconstruction of most of the popular network protocols. It is designed to fit seamlesly into XACCT*usage*, to maximize the value of the collected data.

XACCTpacketSight can automatically classify over 750 different network protocols and applications in over 3300 combinations. That gives it the broadest, real-time, classification capability available in the industry today. Included in this capability are provisions for the complicated, state-based factors required to classify fragmented IP traffic and applications.

XACCTpacketSight inserts itself into the TCP stack and inspects the individual packets. The XACCTpacketSight can be configured to only look at network traffic that concerns the machine it is running on or to look at all traffic on the network segment. A typical use would be to load XACCTpacketSight on a database server. This would determine how much network traffic is needed to handle various transactions.

XACCTpacketSight Technology

XACCTpacketSight is a part of XACCT's intelligent network information gathering architecture. The architecture is not centered around any particular information source. It simply provides one more source amongst the hundreds of other possible sources, so the data can be correlated, aggregated, merged, filtered, and validated along with all the other network information to produce accurate usage measurements and billing records.

XACCTpacketSight collects basic metrics required to understand the amount of traffic an application flow is generating. These statistics include the number of packets or transactions as well as the amount of bandwidth consumed and the amount of time per flow. This allows a management application to understand the real-time impact an application is having on the network. Beyond the basic statistics, XACCTpacketSight can collect metrics that measure the responsiveness of an application in the network response time, non-responsiveness, jitter, latency, and frame burst rates. These can be used to understand the end-user's perceived quality of service.

System Components

XACCTpacketSight reads all packets from a network interface group or capture file. The Session ISM takes the output from the PacketSight ISM as input. It then processes the data to give more meaningful measurements tailored to the users needs. Based on the protocol and metrics provided by the PacketSight ISM, the Session ISM will output the appropriate information for your billing needs.

XACCTpacketSight

XACCTpacketSight is a Network Decision Data Engine (NDDE). It offers a portable, scalable and customizable architecture that supplies comprehensive real-time network information for incorporation into intelligent networking solutions, such as switching, bandwidth management, Quality of Service (QoS), network monitoring, and security. All of which are dependent upon identification and classification of dynamic applications.

PacketSight ISM

The PacketSight ISM is what XACCT*usage* uses to pull usage and QoS information from XACCTpacketSight. The PacketSight ISM is triggered by XACCTpacketSight, which indicates that there are flows which can be read. It will read the flows and produce UNIRs to be sent to the Gatherer.

Session ISM

The Session ISM identifies different types of sessions. It will answer the following questions:

- How long are users staying at new related sites?
- How long are users staying on certain sites?
- Are sports sites more popular than news sites?
- How long is a typical user session?

Using the PacketSight ISM and Session ISM assists you in getting more specific and granular data.

Installing XACCTpacketSight 2

This chapter steps you through the installation procedure for XACCTpacketSight. Before proceeding you must already have a system running XACCT*usage* 3.4. If you do not, please refer to Chapters 2 and 3 of the *XACCTusage 3.3 User Guide* and install it on a system. Only one system needs XACCT*usage* running. This will be your base system including the Central Event Manager (CEM). All of your data collecting systems will need both XACCTpacketSight and a Gatherer installed. The Information Source Modules (ISM) will be installed on the system running XACCT*usage*.

System Requirements

These are the system requirements for XACCTpacketSight on Gigabit Ethernet and Fast Ethernet:

Gigabit Ethernet

- Solaris™ 7 running on Sun® Sparc® platform
- Sun Enterprise 420R 4x450-MHz UltraSPARC-II processors (64 bit architecture)
- 2 GB of RAM on a dedicated computer
- 18.2 GB internal hard disk
- 2xP1000-SX Gigabit Ethernet network interface PCI cards
- CD-ROM drive for the installation

Fast Ethernet

- Solaris™ 7 running on Sun® Sparc® platform
- Sun Enterprise 220R 2x450-MHz UltraSPARC-II processor (64 bit architecture)
- 1 GB of RAM on a dedicated computer
- 18.2 GB internal hard disk
- Quad Fast Ethernet PCI card (Antares)
- CD-ROM drive for the installation

Stages in the Installation

Installation includes the following stages:

1. Turning off Auto-Negotiation. (Sun Gigabit Ethernet cards)
2. Checking for previous installations of XACCTpacketSight.
3. Removing previous installations of XACCTpacketSight if it exists.
4. Installing XACCTpacketSight on systems that will be collecting network data.
5. Installing Gatherers on the same systems in step 1.
6. Checking to make sure the XACCT*usage* CEM is running.
7. Installing the PacketSight ISM.
8. Installing the Session ISM.
9. Installing the Universal Text File ISM.

Turning off Auto-Negotiation (Sun Gigabit Ethernet Cards)

The Sun Gigabit Ethernet cards must have Auto-Negotiation turned off. This can be done by updating the following file:

`/kernel/drv/ge.conf`

Add the parameter `adv_1000autoneg_cap=0` to the file. If the file does not exist, follow these steps:

1 Use the following grep command to obtain the hardware path names for the ge devices in the device tree:

```
# grep ge /etc/path_to_inst
```

Typically the path names and the associated instance numbers will be present in the `/etc/path_to_inst` file. Here's an example of the output:

```
"/pci@1f,4000/network@4" 1 "ge"
"/pci@1f,4000/network@2" 0 "ge"
```

- The first part within the double quotes specifies the hardware node name in the device tree.
- The second number is the instance number.
- The last part in double quotes is the driver name.

2 From the output in step 1, create the following `ge.conf` file:

```
# ge.conf setting autonegotiation to off
name="pci108e,2bad" parent="/pci@1f,4000" unit-address="4"
adv_1000autoneg_cap=0;
name="pci108e,2bad" parent="/pci@1f,4000" unit-address="2"
adv_1000autoneg_cap=0;
```

3 Reboot the system

Installing XACCTpacketSight

XACCTpacketSight goes on all systems that will be collecting network data. Run the XACCTpacketSight installation program from the distribution CD. The following section describes the procedures for mounting the CD.

Note: You must have super user (root) privileges to install XACCTpacketSight. If you do not have such privileges, consult your system administrator on how to obtain them.

Checking for Previous Installations

This section will show you how to check for a previous installation of XACCTpacketSight. If a previous installation does exist, proceed to the next section, "Removing XACCTpacketSight". If a previous installation does not exist, proceed to "Mounting the Distribution CD".

Run the following command to see if XACCTpacketSight is already installed:

```
pkginfo XCCTpkst
```

If **XACCTpacketSight** appears as part of the output, it is currently installed. In which case, proceed to the next section, "Removing XACCTpacketSight". If **XACCTpacketSight** does not appear, proceed to the "Mounting the Distribution CD" section.

Note: If `pkginfo XCCTpkst` doesn't return information, enter `pkginfo XCCTmflw`.

Removing XACCTpacketSight

To remove XACCTpacketSight from your system, do the following steps:

1. Enter `pkgrm XCCTpkst`
2. Reboot the system.

This will remove all of the directories and files which were installed by any previous XACCTpacketSight installations.

Mounting the Distribution CD

1 Verify that the daemon `vold` is active on your Solaris system by executing the command:

```
ps -ef | fgrep vold
```

You should see a line like this:

```
root185 1 0   Nov 17? 0:01/usr/sbin/vold
```

If the `vold` demon is not running, start it. For instruction on the procedure, see your Solaris documentation.

2 Put the distribution CD in your CD-ROM drive. The `vold` daemon automatically mounts the CD.

Running the Installation Program

To start the installation program

1. Enter **`cd /cdrom`** to change to the cdrom directory.
2. Enter **`ls`** to list the files on the CD-ROM.
3. A file named **XCCTpkst** will be one of the files listed.
4. Enter **`pkgadd -d . XCCTpkst`** to run the installation program.
5. If you see this message:

   ```
   Cannot unload module: meterflow
   ```

   This means that the previous version of the module is still running and could not be unloaded. You will need to reboot the system after installation for meterflow to load.
6. A list of your interfaces are then listed. Select which data interfaces you would like monitored. You can choose up to 6. If you would like to only select 1, enter a number from the device list for the first selection, and '0' for the second selection.
   - For Gigabit Ethernet, select **pge0** and **pge1**.
   - For Fast Ethernet, select **qfe0** and **qfe1**.
7. Installation is then complete. If you received the message in step 5, remember to reboot the system.

Checking What was Installed

If you would like to see how many files and directories were installed type the following command:

```
pkginfo -l XCCTpkst
```

The output will look similar to the following:

```
   PKGINST:  XCCTpkst
      NAME:  XACCTpacketSight
  CATEGORY:  application
      ARCH:  sparc
   VERSION:  1.0.0.2
    VENDOR:  XACCT Technologies Inc.
      DESC:  XACCT PacketSight
    PSTAMP:  XACCTpacketSight1.0.0.2_20000914
  INSTDATE:  Sep 14 2000 11:26
   HOTLINE:  Please contact your local service
             provider
    STATUS:  completely installed
     FILES:  19 installed pathnames
             7 shared pathnames
             11 directories
             4 executables
             2499 blocks used (approx)
```

Changing Data Interfaces to be Monitored

You can monitor up to 2 data interfaces at any given time. If you would like to change the data interfaces you are currently monitoring, use the mfsetup utility.

To run MFSETUP:

1 Change directories to `/usr/local/bin/`

2 Enter **`./mfsetup`**

The output will look similar to the following:

```
Max interfaces allowed to select: 6
Select data interface(s) to be monitored.
Device List:
1 hme0
2 pge0
3 qfe0
4 qfe1
5 qfe2
6 qfe3
Total interfaces found to select from: 6
Select ([1-6] or 0 for end selection):
```

To confirm what you have selected, enter the following command:

```
cat /usr/kernel/drv/meterflow.conf
```

The output will look similar to the following:

```
Copyright (c) 2000 XACCT Technologies, Inc.

name=meterflow parent=pseudo; prommode=1;
datasrc1=/dev/hme0;
```

Installing a Gatherer

A Gatherer must be installed on the same systems you installed XACCTpacketSight. To install a Gatherer, please refer to pages 56-59 of the *XACCTusage 3.3 User Guide*. On page 58, be sure that **(3) Gatherer** is the only one that says '**Yes**'.

Ensuring the CEM is Running

The XACCT*usage* CEM must be running in order for an ISM to be installed. The XACCT components are background processes. To check whether the CEM is currently executing, type the following command:

```
ps -ef | grep jre
```

This command should produce output resembling the one shown below (the process numbers and dates will vary):

```
root 29495     1  0 19:15:26 ?        2:13 java -noverify
-mx96m -DMaxHeapMemory=96 CEM cem.ini jre
```

If the CEM process is not listed, start XACCT*usage* manually using the command `/etc/init.d/xacct start`. Then perform this test again.

Installing The PacketSight Information Source Module

To run the PacketSight Information Source Module (ISM) installation program, you need root user access rights for the host on which the Central Event Manager is installed.

Note: The PacketSight ISM must be installed **before** the Session ISM.

To run the Module installation program

1 Log in as root user.

2 Copy the PacketSight.tar.Z file from the CD-ROM to your /tmp directory.

3 Enter `cd /tmp` to change to your tmp directory.

4 Extract the files from the compressed distribution file by executing the following command:

```
zcat PacketSight.tar.Z | tar xvf -
```

5 Execute the following command:

```
./xacct_upgrade
```

The XACCT*usage* installation program starts. The program runs automatically informing you of the actions performed and asking you to confirm and select options.

6 When prompted to read the End-user License Agreement, press Enter to display the text.

7 Read the End-user License Agreement.

8 Do one of the following:

- Type `y` and press Enter, if you agree with the terms of the End-user License Agreement. The installation program proceeds to the next step.
- Type `n` and press Enter, if you do not agree with the terms of the End-user License Agreement. The installation program shuts down.

If you accepted the terms of the End-user License Agreement, the list of components you can install displays.

```
============================================================
            XACCTusage Module Installation
============================================================
You may choose components that will not be installed, by
selecting their number or you can press c to continue, q to
quit

   Install   Name              Description
   =======   ====              ===========
 1 Yes       PacketSight

Your selection :     c
```

9 Select the components you want to install following the instructions on your screen. Use the following procedures to enter your selection.

- To change the installation status of a system component on the list (to alternate between `Yes` and `No`), type the number of the component and press Enter.
- To continue with installation, type `c` and press Enter. The components selected to be installed (marked with `Yes`) will be installed.
- To quit the installation program, type `q` and press Enter.

The selected components are installed. If installation is successful, the Central Event Manager sends the modules you have installed to the appropriate host or hosts. If installation is not successful, you get a notification with a description of the problem.

10 Repeat steps 1 through 7 for the Session ISM and Universal Text File ISM.

Configuring XACCTpacketSight 3

XACCTpacketSight starts reading and collecting packets as soon as you install it. It collects in excess of 180 fields. You use XACCT*usage* to configure which of those 180 fields you want to process.

This chapter covers how to use XACCT*usage* to configure the XACCTpacketSight. It will walk you through from beginning to end how to configure Gatherers, ISMs, Enhancement Procedures, fields, and queries. To learn more on how to access and work with the XACCT User Interface, please refer to Chapter 4 of the *XACCTusage 3.3 User Guide*. It can be found in PDF format either on the XACCT*usage* installation CD, or in the `/xacct/docs` directory on your hard disk.

This chapter will walk you through the following:

- Adding and configuring a Gatherer
- Configuring the PacketSight ISM
- Configuring the Session ISM
- Configuring the Universal Text File ISM (UTF)
- Adding a new Table
- Setting up Enhancement Procedures
- Enhancing Fields
- Creating a Query for the new Table

This chapter will show you how to do each of the above tasks once. For tasks such as adding and configuring a Gatherer, you will need to do this several times, once for each system you will be using to collect data.

The Flow of Data

Once your customer begins using the Internet, sessions begin to be created. XACCTpacketSight efficiently evaluates each packet and generates the results in real time. The PacketSight ISM captures the information from XACCTpacketSight. The PacketSight ISM turns the data into a Unified Network Information Record (UNIR). The UNIR is then pulled into the Gatherer. The Gatherer sends the UNIR to the Session ISM where it is processed and enhanced by the Universal Text File (UTF) ISM. The UNIR is then forwarded to the Central Event Manager (CEM). From here, the data goes to two different places. It goes to the Central Database (CDB) to be stored and to the XACCT Interface Server (XIS). The XIS converts the data into a comma separated value (CSV) file format to be stored in WhiteCross.

Initial System Configuration

Before you can begin using the configuration of XACCTpacketSight you need to have XACCT*usage* already up and running. This includes having it licensed and connected to the other systems from which you will be collecting data.

To configure XACCTpacketSight after initial installation you must do the following in the order specified:

1. Add the Gatherers.
2. Add the Information Source Modules for each Gatherer.
3. Configure the Information Source Modules.
4. Add a table.
5. Define the Enhancement Procedures.
6. Check how Field Enhancements are defined and modify them if necessary.
7. Add a query for the new table.

Before you begin configuring XACCT*usage*, make sure that:

1 XACCT*usage* is properly installed and licensed.

Note: The Gatherer software must be installed on all computers on which you want to have Gatherers.

2 XACCTpacketSight software, PacketSight ISM, Session ISM, and Universal Text File ISM (UTF) have been installed.

Note: Some ISMs are installed with the system. See the section "Adding Information Sources" on page 138 of the XACCT*usage* 3.3 User Guide for the procedures on checking available Information Sources.

3 You know the host names or IP addresses of the computers on which the Gatherer software is installed.

4 You have performed Information Source setup for the Information Sources you intend to use (if required), as described in the corresponding *Information Source Module Guides*.

5 You have Administrator or Manager access rights.

Tip: After configuring the system, choose **Refresh** from the **View** menu to update the screen display and view your changes in the XACCT tree.

Configuring the Gatherers

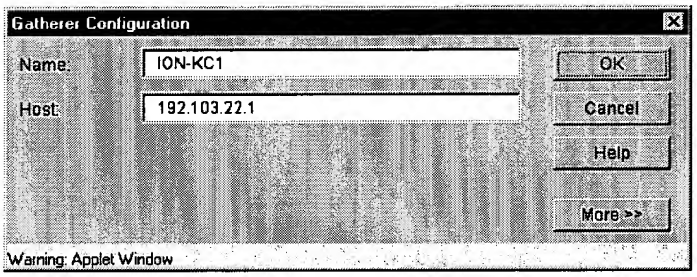
The first step in configuring XACCT*usage* is to add the Gatherers. After you add a Gatherer, you can modify its properties. Users with Administrator or Manager access rights can add, modify, and delete Gatherers.

Adding Gatherers

To add a new Gatherer

1 In the XACCT main screen, right-click the Gatherers folder.

2 Click **New Gatherer** on the shortcut menu. The Gatherer Configuration dialog box is displayed.



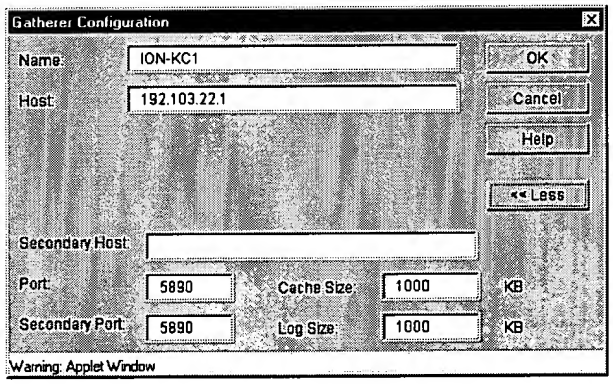
3 In the **Name** box, type the name of the Gatherer. You must use different names for all Gatherers. Below is a list with suggested names.

Gatherer Name	Function of Gatherer
ION-KC1	Collects packets in Kansas City
ION-KC2	Collects packets in Kansas City
ION-KC3	Collects from DEN1,DEN2, LV1, LV2, SEA1, SEA2
ION-KC4	Collects from PHO2, ORL1, ORL2, KC1, KC2
ION-DEN1	Collects packets in Denver
ION-DEN2	Collects packets in Denver
ION-SEA1	Collects packets in Seattle
ION-SEA2	Collects packets in Seattle
LTD-LV1	Collects packets in Las Vegas
LTD-LV2	Collects packets in Las Vegas
LTD-ORL1	Collects packets in Orlando
LTD-ORL2	Collects packets in Orlando
BWG-PHO1	Collects packets in Phoenix
BWG-PHO2	Collects from PHO1

4 In the **Host** box, type the name or IP address or name of the host computer on which the Gatherer is installed.

5 We recommend you use the default values for the **Port** number, **Cache Size,** and **Log Size**. If you want to change the defaults, click **More>>** to expand the Gatherer Configuration dialog box and do the following:

- To add a Secondary Host, enter the IP Address in the **Secondary Host** box.
- To change the port number, in the **Port** box, type any number between 1025 and 65000. The default is **5890**. You only need to change the port number if another application is using the default port number. **Note**: The port number must be the same as the one used when installing the Gatherer.
- To change the size of the cache you want the Gatherer to use, type the new value in the **Cache Size** box. The value you type can be greater than zero or zero. When it is zero, the Gatherer does not use a cache. Increasing the size of the cache will speed up the performance of any Data Enhancement Module (DEM) the Gatherer hosts. For example, if the Gatherer hosts a DNS Data Enhancement Module, DNS address resolution will be faster. Increasing the size of the cache consumes more disk space, so if the Gatherer will not host a DEM, it is best not to increase the cache size.
- To change the size of the log file, type the new value in the **Log Size** box.



Gatherer Configuration Dialog Box (Expanded View)

6 Click **OK** to close the Gatherer Configuration dialog box. The new Gatherer is added to the system configuration and its icon and name appear in the Gatherers folder.

Notes

1. If the new Gatherer cannot be added to the system, a message identifying the problem is displayed.

2. You can also add a Gatherer using the toolbar and the menu to carry out the New command. (See the section "Creating New Objects" on page 116 of the *XACCTusage 3.3 User Guide* for additional details.)

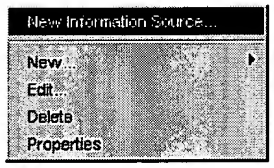
For additional information on how to modify, or delete a Gatherer, please refer to pages 136-137 of the *XACCTusage 3.3 User Guide*.

Adding the PacketSight ISM to the XACCT*usage* Configuration

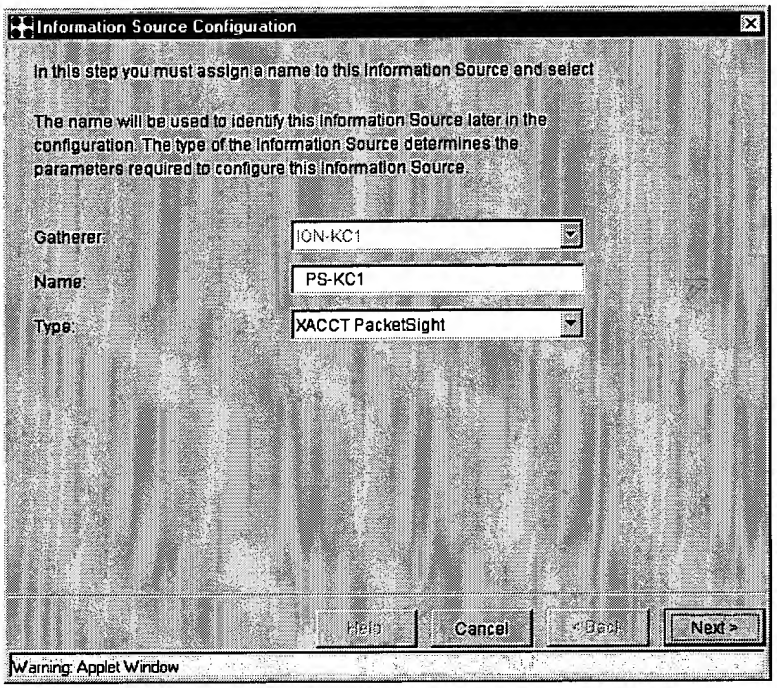
Before you add the PacketSight ISM to XACCT*usage*, make sure that PacketSight ISM has been installed on the host computer of the CEM. There are several ways in which you can add an ISM to the XACCT*usage* configuration: using the shortcut menu, the Object menu, or the New button on the toolbar. The first option is described in the following procedure.

To add a new PacketSight ISM

1 In the XACCT tree, right-click the Gatherer to which you want to add the PacketSight ISM, and then click **New Information Source**.



2 In the **Name** box, type a unique name for this Information Source.



Here are suggested names for the PacketSight ISMs.

PacketSight ISM Names	
PS-KC1	PS-LV1
PS-KC2	PS-LV2
PS-DEN1	PS-ORL1
PS-DEN2	PS-ORL2
PS-SEA1	PS-PHO1
PS-SEA2	

3 From the **Type** list, select **PacketSight**.

4 Click **Next**. A screen appears confirming that configuration of the PacketSight ISM has been successful. This may take a minute or two as the ISM is now being downloaded to the Gatherer.

5 Click **Finish** to complete the procedure.

Adding The Session ISM to the XACCT*usage* Configuration

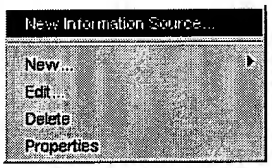
Before you add the Session ISM to XACCT*usage*, make sure that the Session ISM has been installed on the host computer of the CEM. There are several ways in which you can add an ISM ot the XACCT*usage* configuration: using the shortcut menu, the Object menu, or the New button on the toolbar. The first option is described in the following procedure.

The Session ISM will need to be added to the following systems:

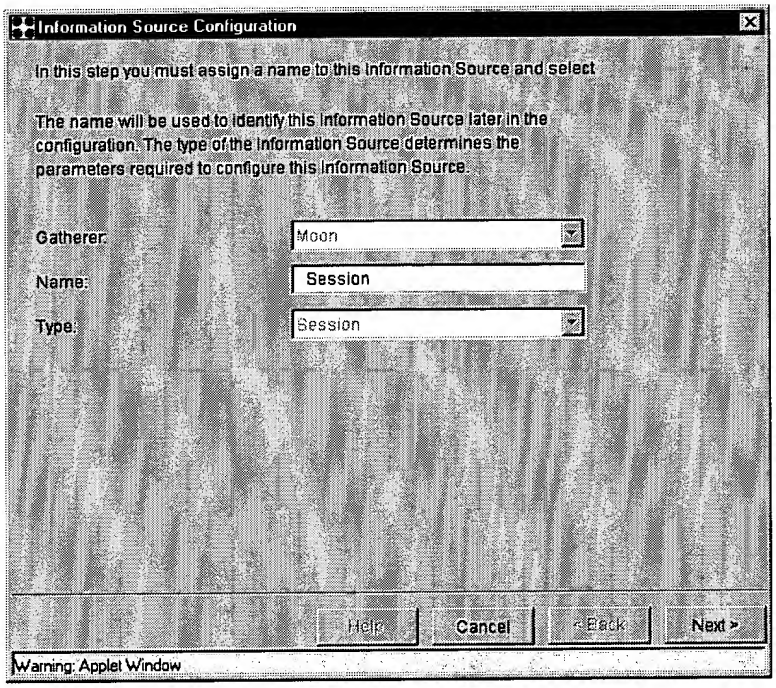
Ses-KC3
Ses-KC4
Ses-PHO2

To add a new Session ISM

1 In the XACCT tree, right-click the Gatherer to which you want to add the Session ISM, and then click **New Information Source**.

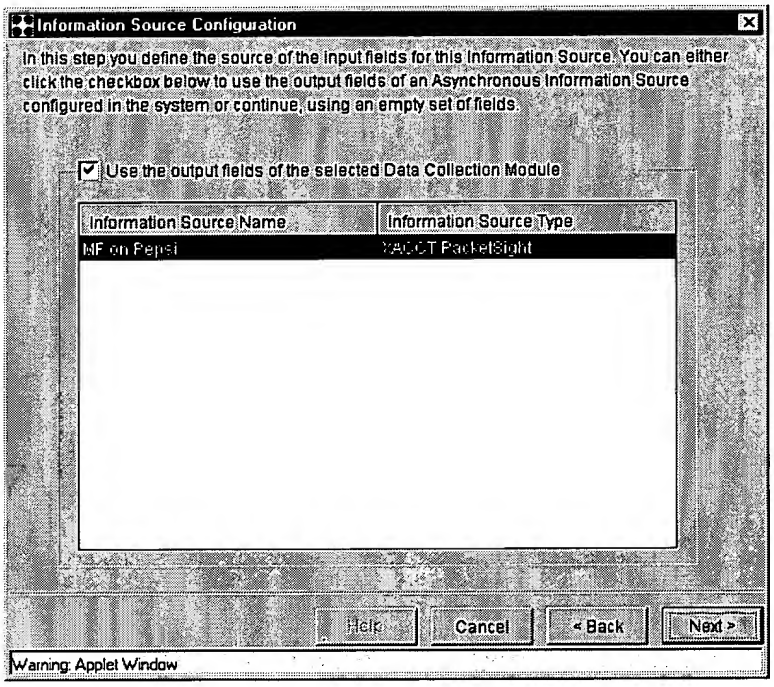


2 In the **Name** box, type a unique name for this Information Source. A suggested name is **Ses-KC3**.



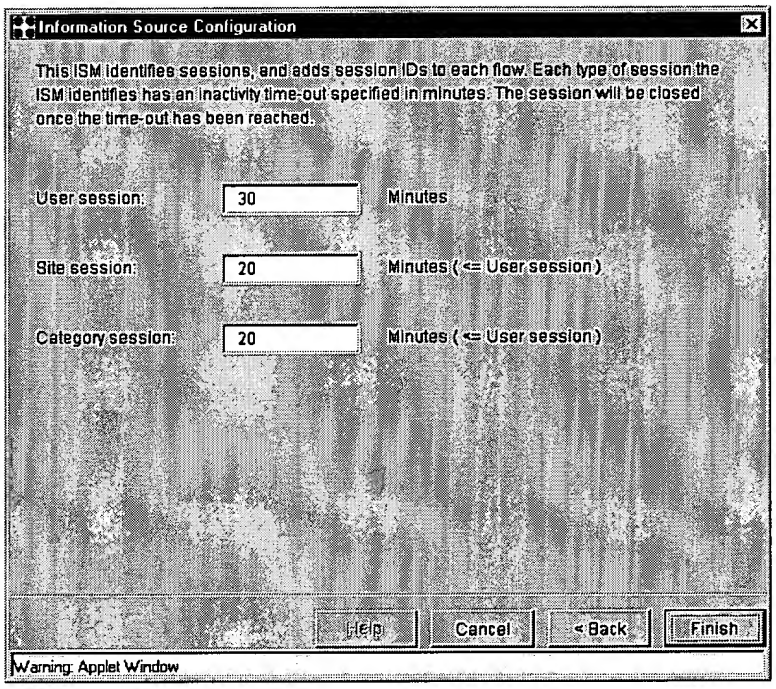
3 From the **Type** list, select **Session** and then click **Next**. A screen appears allowing you to select the information source from which the input fields will be acquired.

4 Check the **Use the output fields of the selected Data Collection Module** box.



5 From the **Information Source Name** list, select **PS-KC1**. The fields output by the selected information source will be used as the basic input fields of the Session ISM. Click **Next**.

6 The next screen allows you to set the session timeouts. A 30 minute timeout means if there is no activity within 30 minutes, the session will be closed and the session ID is stored. If there is activity after the 30 minutes, a new session will be started with a new session ID. Enter a number from 1 to 60 in each of the **Minutes** boxes.



7 Click **Finish** to save the new Session IS.

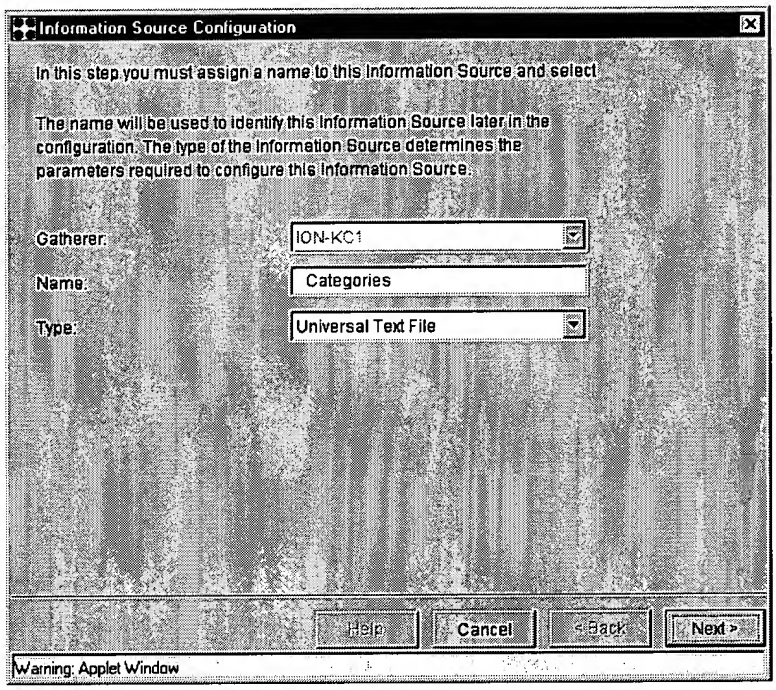
Adding the Universal Text File ISM to the XACCT*usage* Configuration

The Universal Text File (UTF) ISM will convert domain names into the categories your text file is providing. Your text file should provide sites and the categories you want them broken down into. Before you add the UTF ISM to XACCT*usage*, make sure that the UTF ISM has been installed on the host computer of the CEM. There are several ways in which you can add an ISM ot the XACCT*usage* configuration: using the shortcut menu, the Object menu, or the New button on the toolbar. The first option is described in the following procedure.

To add a new UTF ISM

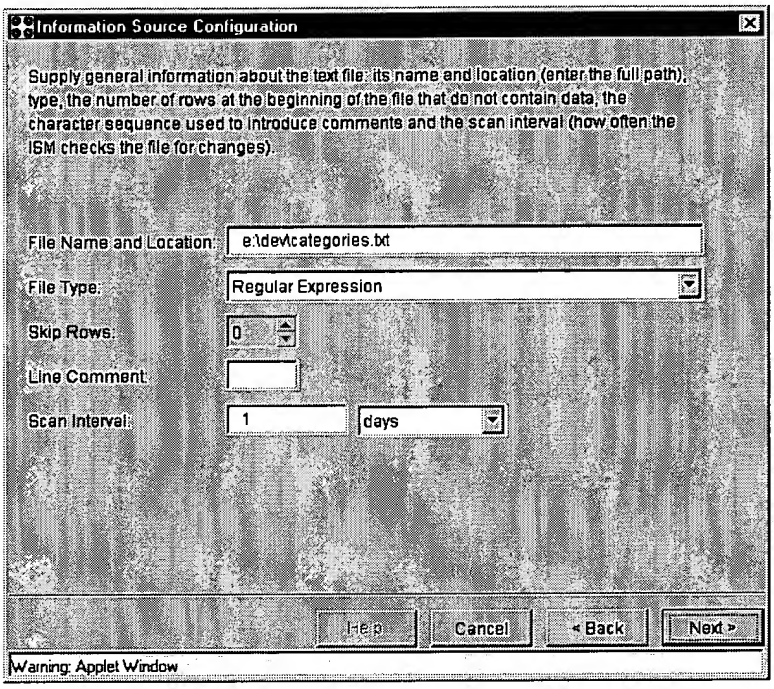
1 In the XACCT tree, right-click the Gatherer to which you want to add the UTF ISM, and then click **New Information Source**.

2 In the **Name** box, type a unique name for this Information Source. A suggested name is **Categories**.



3 From the **Type** list, select **Universal Text File** and then click **Next**.

4 Enter the **Path** of the sites and categories text file you are providing in the **File Name and Location** box.



5 Enter the **Path** of the sites and categories text file you are providing in the **File Name and Location** box.

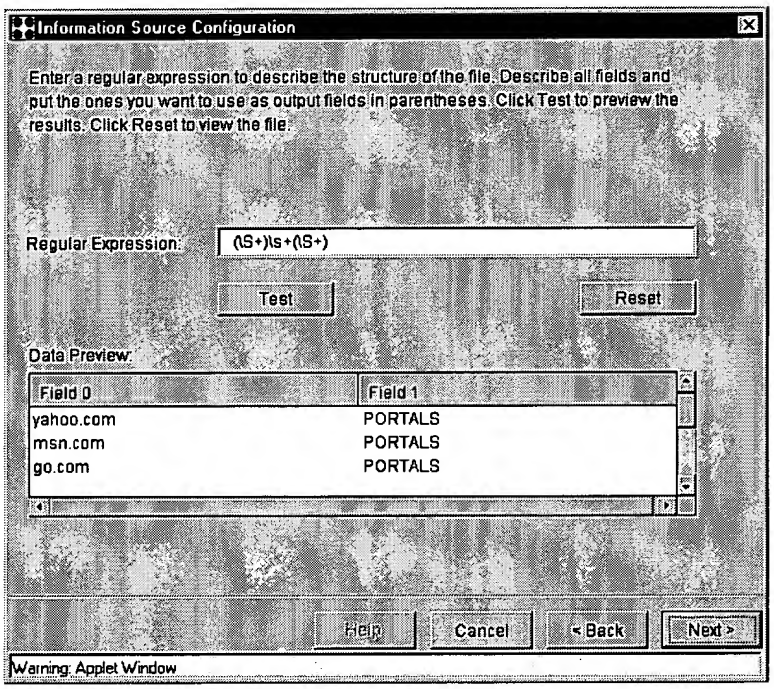
6 Select the default **Regular Expression** in the **File Type** drop-down box.

7 Use the **Skip Rows** box if your text file contains lines that are not data lines at the beginning, replace the default value (zero) with the number of lines you want the module to skip during scans.

8 If your text file has comments introduced by a character (or character sequence), type the character (or character sequence) in the **Line Comment** box.

9 Use the **Scan Interval** box to indicate how frequently the module checks the text file for changes.

10 Click **Next** to proceed. The Regular Expression Box appears



11 In the **Regular Expression** box, type a regular expression using regular expression syntax to describe the structure of the file: the collection of fields that each record contains and the separator used.

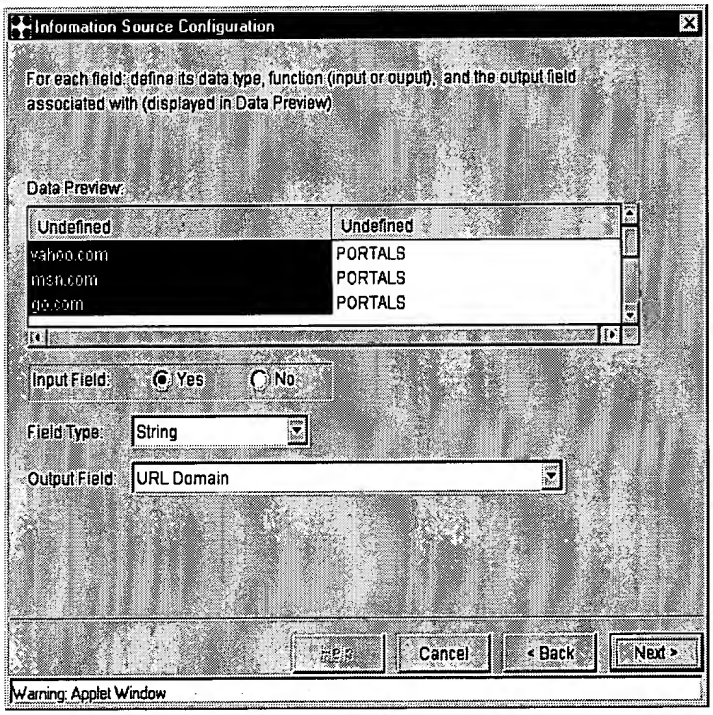
We recommend this **Regular Expression: (\S+)\s+(\S+)**

For addional information on Regular Expressions, please refer to *Appendix A* of the *Universal Text File ISM Guide*. It's located in PDF format in `/xacct/docs` on your CEM's hard disk.

Note: Describe all fields that appear in the file and enclose the fields you want the ISM to read in parentheses.

12 Click the **Test** button to test the regular expression. The **Data Preview** box shows how the ISM parses the data in the file using the regular expressions you have entered; it displays all fields the ISM reads. If you are satisfied with the way the ISM reads the file, click **Next**. If you want to modify the regular expression, repeat the previous step. If you want the Data Preview box to display the original view of the file (the view that shows the data before it is parsed by the ISM), click **Reset**.

13 In the next screen that displays, define the properties of each data field as follows:



14 Click on the first **column heading** to select the field.

15 Click the **Yes** radio button for the **Input Field**.

16 From the **Field Type** list, choose **String**.

17 Select **MF URL Domain** as the output field from the **Output Field** list.

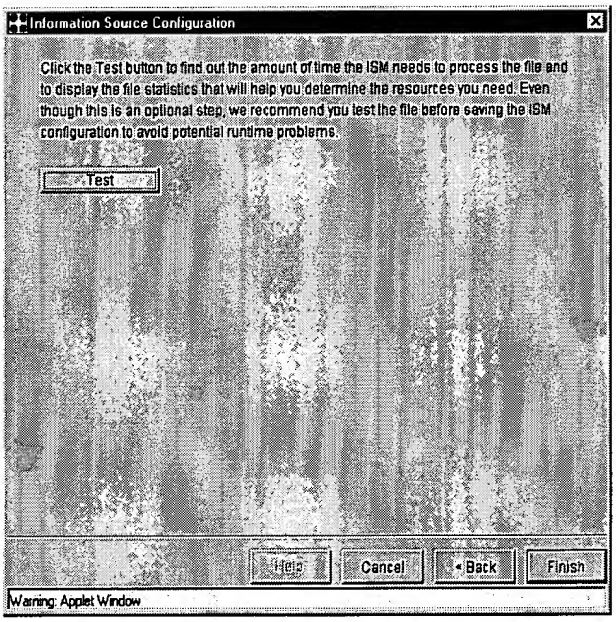
18 Click on the second **column heading** to select the field.

19 Click the **No** radio button for the **Input Field**.

20 From the **Field Type** list, choose **String**.

21 Select **Facility Category** as the output field from the **Output Field** list.

22 Click **Next** to display the final screen of the Information Source Configuration Wizard.



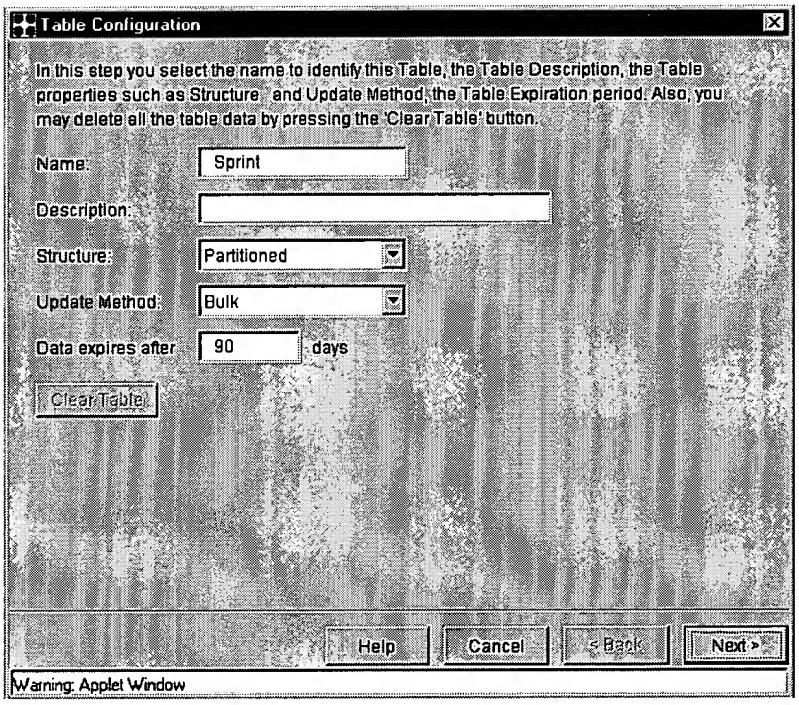
23 Click the **Test** button to find out how much time it takes to process the file. Use the results as a gauge to determine the resources you need.

Adding a Table

A default primary table is installed with XACCT*usage*. This section will walk you through adding a table with the fields for your specific requirements. You add tables using the Table wizard. You can start the wizard using the toolbar, the menu bar, or the shortcut menu. The following procedure describes the latter option.

To add a new table

1 In the XACCT main screen, right-click the Tables folder, and then click **New Table** on the shortcut menu. The Table wizard starts.



2 Enter **Sprint** in the **Name** box.

3 Add a **Description** of the table. (Optional)

4 Select **Partitioned** from the **Structure** drop-down box.

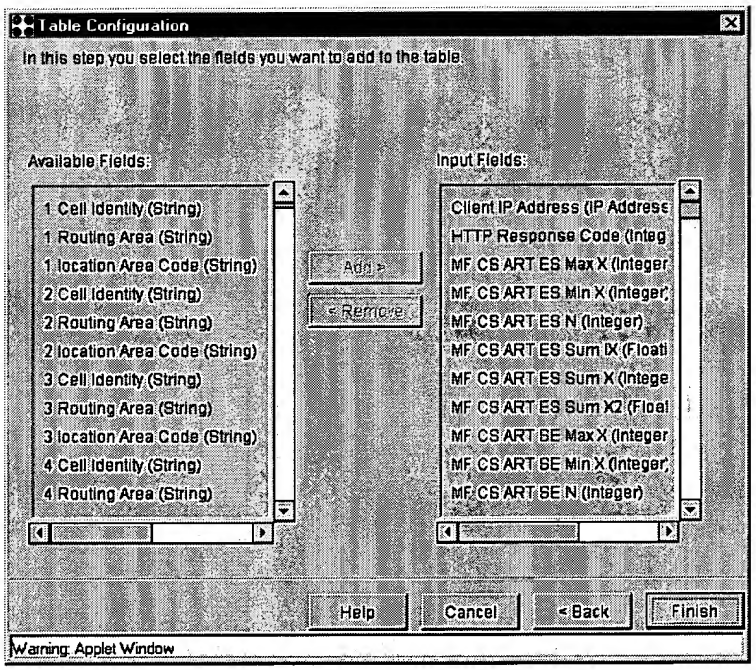
5 Select **Bulk Inserts** from the **Update Method** drop-down box.

6 Enter the number of days you want the database to store the data in the **Data Expires** after box.

7 Click **Next** to select the Information Source keys you want to add the table.

8 Click on the **Session ISM** to highlight it.

9 Click **Next** to select the fields.



For names and descriptions of all available fields, please refer to the "Output Fields" section of the *"PacketSight ISM and Session ISM Manuals."*

10 Click **Finish** to add the table and save the table properties.

For additional information on adding tables, please refer to pages 175-177 in the *XACCTusage 3.3 User Guide.*

Adding Fields

The ISMs provide you with all the fields you requested. There may be times when you would like to add more fields for your reporting and billing needs. For information on how to add a field, please refer to pages 183-185 of the *XACCTusage 3.3 User Guide.*

Configuring the Enhancement Procedures

This section walks you through setting up two Enhancement Procedures. For general information on configuring Enhancement Procedures, please refer to pages 144-173 of the *XACCTusage 3.3 User Guide.*

These are the two Enhancement Procedures you will be configuring:

1. PacketSight to Session
2. Session to Central Database

The first Enhancement Procedure uses the PacketSight ISM as the trigger to pull the data from XACCTpacketSight and pass it on to the target Session ISM, which is the Data Processing Module. The second Enhancement Procedure uses the Session ISM as the trigger to forward the data to the CDB.

Configuring Enhancement Procedure No. 1

You will need to set up Enhancement Procedure No. 1 for each of the following ISMs:

PS-KC1
PS-KC2
PS-DEN1
PS-DEN2
PS-SEA1
PS-SEA2
PS-LV1
PS-LV2
PS-ORL1
PS-ORL2
PS-PHO1

To set up the first Enhancement Procedure

1. Right-click on the Enhancement Procedures folder, and then click **New Enhancement Procedure**. The Enhancement Procedure Configuration dialog box is displayed.
2. In the **Name** box, type **PS-KC1 to Ses-KC3** to describe the information going from the PS-KC1 ISM to the Ses-KC3 ISM.
3. In the **Description** box, type a description. (Optional) The description will be displayed when the properties of the Enhancement Procedure are viewed.
4. From the **Trigger** list, choose **PS-KC1**.
5. From the **Target Type** list, choose **Data Processing Module**.
6. From the **Target Name** list, choose **Ses-KC3**.
7. From the **Reliability Mode** list, select **None (Fast)** for the reliability level.
8. Keep the **Enabled** box empty for now. We will enable it after Enhancement Procedure No. 2 is configured and the necessary fields are enhanced.
9. Click **OK** to save the Enhancement Procedure.

Configuring Enhancement Procedure No. 2

You will need to set up Enhancement Procedure No. 2 for each of the following ISMs:

Ses-KC3
Ses-KC4
Ses-PHO2

To set up the second Enhancement Procedure

1 Right-click the Enhancement Procedures folder, and then click **New Enhancement Procedure**. The Enhancement Procedure Configuration dialog box is displayed.

2 In the **Name** box, type **Ses-KC3 to CDB** to describe the information going from the Ses-KC3 ISM to the Central Database Table.

3 In the **Description** box, type a description. (Optional) The description will be displayed when the properties of the Enhancement Procedure are viewed.

4 From the **Trigger** list, choose the **Ses-KC3** ISM.

5 From the **Target Type** list, choose **Central Database Table.**

6 From the **Target Name** list, choose the table**Sprint.**

7 From the **Reliability Mode** list, select **None (Fast)** for the reliability level.

8 Keep the checkmark in the **Store in DB** box.

9 Keep the **Enabled** box empty for now. We will modify it after the necessary fields are enhanced.

10 Click **OK** to save the Enhancement Procedure.

Defining Field Enhancements

The Facility Category field needs additional enhancements.

1 Click the plus sign in the box next to the **PS-KC1 to Ses-KC3** Enhancement Procedures to display the fields.

2 Right-click on the **Facility Category** field and select **Edit.**

3 Click the **Continue** button. From the drop-down box select **UTF.Get(MF URL Domain:String)->(Facility Category)**

4 From the **URL Domain** drop-down box, select **MF URL Domain**.

5 Click the **End** button. From the drop-down box select **UTF...Facility Category**.

Enable both Enhancement Procedures

1 Right-click the **PS-KC1 TO Ses-KC3** Enhancement Procedure, and then click **Edit**.

2 Click the **Enabled** check box. A check mark appears in the box.

3 Click **OK** to close the Enhancement Procedure Configuration dialog box. The Enhancement Procedure is activated.

4 **Repeat** steps 1-3 for the **Ses-KC3-CDB** Enhancement Procedure.

Creating a Latest Data Query for the New Table

To create a Latest Data Query for the new table.

1 In the XACCT tree, click the **Queries** folder to display the existing queries.

2 Right-click on the **Latest Data** query and select **Edit**.

3 Change the **Name** of the Query to **Latest Data for Sprint**.

4 From the **Table** drop-down box, select **Sprint**.

5 Select the **Output Fields** you would like and click the **Next** button.

6 Click the **Next** button the rest of the way through until you reach the **Finish** button.

To run the Latest Data for Sprint query.

1 Right-click on the **Latest Data for Sprint query**.

2 Select **Run**.

System Management and Maintenance 4

This chapter describes the maintenance and management of XACCTpacketSight. It includes information on the following topics:

- Turning on Notrouter.
- Changing data interfaces to be monitored.
- Checking which data interfaces are currently being monitored.

Turning on Notrouter

Notrouter needs to be turned "on" in order for XACCTpacketSight to run successfully. Notrouter is turned on during XACCTpacketSights package installation. Notrouter is normally on by default on most systems. There are two reasons XACCTpacketSight needs Notrouter turned on:

1 XACCTpacketSight doesn't want the hardware it is installed on to act like a router.

2 With XACCTpacketSight turned on, there hardware will not perform IP Forwarding.

Note: If for some reason you decide to use the current system running XACCTpacketSight for something else later, you will most likely want to remember that XACCTpacketSight turned on Notrouter.

Changing Data Interfaces to be Monitored

You can monitor up to 2 data interfaces at any given time. If you would like to change the data interfaces you are currently monitoring, use the mfsetup utility.

To run MFSETUP:

1 Change directories to `/usr/local/bin/`

2 Enter **`./mfsetup`**

The output will look similar to the following:

```
Max interfaces allowed to select: 6
Select data interface(s) to be monitored.
Device List:
1 hme0
2 pge0
3 qfe0
4 qfe1
5 qfe2
6 qfe3
Total interfaces found to select from: 6
Select ([1-6] or 0 for end selection):
```

Checking Which Data Interfaces are Currently Being Monitored

To check which data interface are currently being monitored, enter the following command:

```
cat /usr/kernel/drv/meterflow.conf
```

The output will look similar to the following:

```
Copyright (c) 2000 XACCT Technologies, Inc.

name=meterflow parent=pseudo; prommode=1;
datasrc1=/dev/hme0;
```

System Specifications 5

Platforms

You can install XACCTpacketSight on the following:

- Solaris 2.7 or later running on Sun Sparc platform.

Relational Database Management Systems

You can use XACCT*usage* with one of the following Database Management Systems:

- Oracle Server 7.3 or 8.0.5 on any platform.

Browsers

The XACCT User Interface is accessible from win32 platforms (Microsoft Windows 95 and Microsoft Windows NT) through the following browsers:

- Netscape Navigator 3.01 or later with Java™ Plug-in on the XACCT*usage* CD.
- Microsoft Internet Explorer 3.02 or later with Java™ Plug-in on the XACCT*usage* CD.

Information Source Modules

The Information Source Modules we recommend to use with XACCTpacketSight are the following:

- PacketSight ISM
- Session ISM
- Universal Text File ISM

Note: For a complete list of available Information Sources, refer to http://www.xacct.com.

Network Interface Cards

These are the required Network Interface Cards (NICs) for both Gigabit Ethernet and Fast Ethernet:

Gigabit Ethernet:

- Phobos P1000-SX

Fast Ethernet:

- Antares P-0075

XACCTpacketSight Files

A

Below are a list of the files and directories installed by XACCTpacketSight:

```
XCCTpkst
XCCTpkst/pkgmap
XCCTpkst/pkginfo
XCCTpkst/root
XCCTpkst/root/etc
XCCTpkst/root/etc/notrouter
XCCTpkst/root/kernel
XCCTpkst/root/kernel/strmod
XCCTpkst/root/kernel/strmod/sparcv9
XCCTpkst/root/kernel/strmod/sparcv9/mflowmod
XCCTpkst/root/usr
XCCTpkst/root/usr/kernel
XCCTpkst/root/usr/kernel/drv
XCCTpkst/root/usr/kernel/drv/meterflow
XCCTpkst/root/usr/kernel/drv/meterflow.conf
XCCTpkst/root/usr/local
XCCTpkst/root/usr/local/bin
XCCTpkst/root/usr/local/bin/mfsetup
XCCTpkst/root/usr/local/doc
XCCTpkst/root/usr/local/doc/xacct
XCCTpkst/root/usr/local/doc/xacct/install_config_guide.pdf
XCCTpkst/root/usr/local/doc/xacct/readme.txt
XCCTpkst/install
XCCTpkst/install/postinstall
XCCTpkst/install/preremove
```